

OPERATION MANUAL

Digital thermometer A305



Description



Introduction

This instrument is a portable, compact-sized digital thermometer designed to use external NiCr-Ni K-type thermocouples as temperature sensor according to DIN/IEC.

Safety information

It is recommended that you read the safety and operation instructions before using the thermometer.

Warning

To avoid electrical shock, do not use this instrument when voltages at the measurement surface exceed 24 V AC or 60 V AC.




To avoid damage or burns, do not make temperature measurements in microwave ovens.

Caution

Repeated sharp flexing can break the thermocouple leads. To prolong lead life, avoid sharp bends in the leads, especially near the connector.



The -symbol on the instrument indicates, that the operator must refer to an explanation in this manual.

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Technical data

Digital thermometer A305	
Temperature Scale	Celsius or Fahrenheit user-selectable
Measuring range	-50...+1300 °C (-58...+2000 °F)
Resolution	1 °C or 1 °F, 0,1 °C or 0,1 °F
Accuracy	Accuracy is specified for operating temperatures over the range of 18 °C to 28 °C (64 to 82 °F), for 1 year, not including thermocouple error ±(0,3% rdg +1 °C) -50...+1000 °C ±(0,35% rdg +1 °C) +1000...+1300 °C ±(0,3% rdg +2 °F) -58...+2000 °F
Input protection	60 V DC or 24 V rms AC maximum input voltage on any combination of input pins
Reading rate	2,5 times per second
Input connector	Accepts standard miniature thermocouple connectors (flat blades spaced 7.9 mm, center to center)
Ambient operating range	0...+50 °C (+32...+122 °F)
Storage temperature	-20...+60 °C (-4...+140 °F)
Relative humidity	0...80% (0...35 °C) (32...95 °F) 0...70% (35...50 °C) (95...122 °F)
Display	3½-digit liquid crystal display (LCD) with maximum reading of 1999
Battery	Standard 9V battery (NEDA 1604, IEC 6F22)
Battery life	200 hours typical with carbon zinc battery
Dimensions	147 mm x 70 mm x 39 mm (HxWxD)
Weight	7.4 oz (210 g)
CE-conformance	2004/108/EG
Electromagnetic compatibility	EN 61326-2-1:2013 EN 61326-2-2:2013
Articleno.	0560 0307

Battery replacement

Power is supplied by a 9 volt „transistor“ battery (NEDA 1604, IEC 6F22). The battery-symbol appears on the LCD display when replacement is needed. To replace the battery, remove the three screws from the back of the thermometer and lift off the front case. Remove the battery from case bottom.

Warning: To avoid possible electrical shock, disconnect the thermocouple connectors from the thermometer before removing the cover.

Attention

Please avoid extreme mechanical and inappropriate exposure.

The device/product is not suitable for potential explosive areas and medical-technical applications.

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Operating instructions

Selecting the Temperature Scale

Readings are displayed in either degrees Celsius (°C) or degrees Fahrenheit (°F). When the thermometer is turned on, it is set to the temperature scale that was in use when the thermometer was last turned off. To change the temperature scale, press the °C or °F key.

Selecting the Display Resolution

The thermometer allows two choices of resolution:

High resolution: 0.1 °C or 0.1 °F

Low resolution: 1.0 °C or 1.0 °F

To select the alternate display resolution, press the corresponding „1°“ or „0.1°“ key.

Overload display (OL)

The digital display will indicate OL when the input exceeds the measurement range selected. If measuring above 199.9°, change the resolution to 1°. Be certain to seat the thermocouple connector properly and that the leads are not broken.

HOLD mode

Pressing the HOLD key to enter the DataHold mode, the „D-H“ annunciator is displayed. When HOLD mode is selected, the thermometer held the present readings and stops all further measurements.

Pressing the HOLD key again cancels HOLD mode, causing the thermometer to resume taking measurements.

MAX mode

Pressing the MAX key to enter the MAX mode. The thermometer then records and updates the maximum values and the MAX annunciator appears on the display. Pressing the MAX key again to exit the MAX recording mode.

In the MAX mode, press HOLD key to stop recording, press HOLD again to resume recording.

Offset adjustment

The OFFSET controls are set at the factory to allow for the variations found in standard thermocouples. By adjusting the OFFSET controls, you can optimize measurement accuracy for a particular thermocouple at a particular temperature.

Adjusting for Accurate Measurements

1. Connect the thermocouple to the input connector and turn the thermometer ON, then press the 0.1° key to select the high display resolution.
2. Place the thermocouple in a known, stable temperature environment at or near the temperature you wish to measure, and allow the readings to stabilize.
3. Slowly adjust the OFFSET control so that the thermometer reading matches the temperature of the known environment. Leave sufficient time between adjustments to allow for measurement lag.
4. The calibration of the thermometer-thermocouple combination is now optimized for measurements near the temperature measured in step 2.

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Resetting the OFFSET Control

To return the OFFSET control to their factory setting without having to recalibrate the thermometer, perform the following procedure:

1. Connect a thermocouple that is in good working order to the input that is to be adjusted.
2. Place the thermocouple in an ice-water bath and allow the reading to stabilize.
3. Slowly adjust the OFFSET control until the thermometer reads 0°C (32°F)

Questions

If you have further questions, that cannot be solved with this manual, please contact:

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